Hierarchical Assembly and Enhanced Lithium Storage Properties of 3D SnO₂/PC Hybrids

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Ultrasmall SnO₂ nanoparticles (~ 3 nm in diameter) confined in three dimensional hierarchical porous carbon (3D SnO₂/PC) were successfully prepared using a simple method in this work. The 3D SnO₂/PC has almost monodispersion of the SnO₂ nanoparticles with 73 wt% load. The 3D SnO₂/PC exhibits excellent performance with high rate capability and significant cycle stability. At 0.1 A /g in the 100th cycle, the reversible specific capacity is 1374 mAh/g. These outstanding characteristics are desirable and make 3D SnO₂/PC a promising anode material for LIBs.

Keywords: 3D porous carbon; Tin dioxide; Anode; Lithium ion battery

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